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EXAMINER	
CHANDRAN, BIJU INDIRA	
ART UNIT	**PAPER NUMBER**
2835	

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/767,528	WORTMAN ET AL.	
	Examiner	Art Unit	
	Biju Chandran	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/23/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

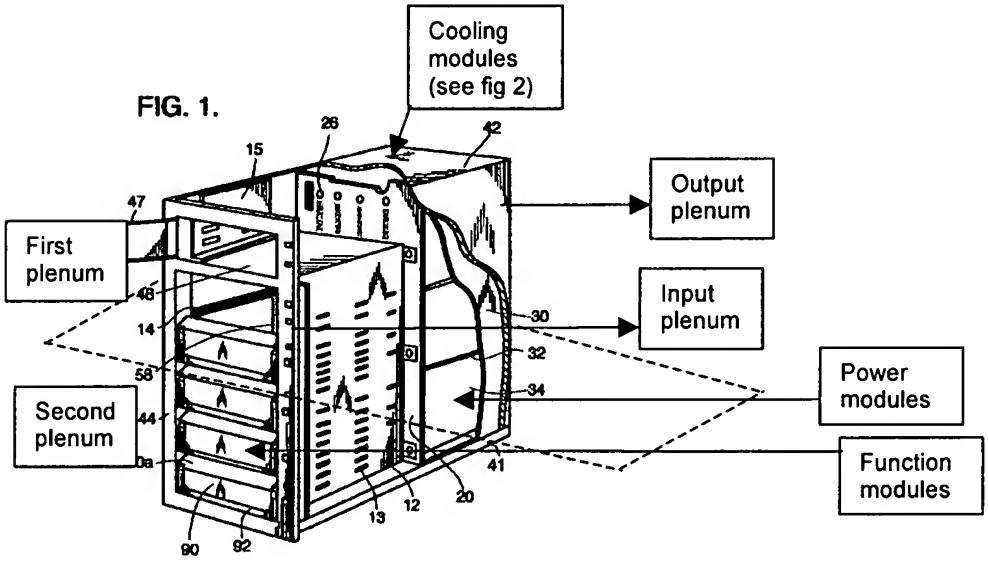
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-5, 7-13, 15-18, 20, 22, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US Patent 6,018,456), in view of Grouell et al. (US Patent 5,912,799).

   - Regarding claim 1, Young et al. disclose an electronic system comprising: an enclosure (10), and a backplane (20) coupled inside the enclosure and comprising a plurality of slots (22, 24) configured to interchangeably receive a plurality of modules (34,35,39), selected from among multiple different power modules (34, 35), and function modules (column 3, line 10-20) adapted for plug insertion into backplane slots (column 2, lines 32-57). Young et al. do not explicitly say that the backplane receives all power and signal connections from external to the enclosure via the modules rather than internal cabling. Grouell et al. teach a backplane that receive all power and signal connections from external to the enclosure via the modules rather than internal cabling (column 1, lines 45-50). At the time the invention was

made, it would have been obvious to a person of ordinary skill in the art to modify the electronic system as disclosed by Young et al. by incorporating the backplane as taught by Grouell et al., for easy assembly by snapping the components into place and to reduce the breaking of connections during repeated module insertions and extractions (abstract).

FIG. 1.



- With respect to claim 2, Young et al. further disclose a plenum airspace including an input plenum and an output plenum.
- With respect to claim 3, Young et al. further disclose a cooling module (39) plug inserted (column 6, lines 10-12) into a backplane slot adjacent to a plenum airspace and adapted to move arir through the plenum airspace (column 5, lines 54-57).

- With respect to claim 4, Young et al. further disclose at least one module including power modules and function modules interchangeably plug-inserted into at least one back plane slot, and forming an unobstructed airway between the input plenum and the output plenum (column 3, 61-67).
- With respect to claim 5, Young et al. further disclose at least one module including power modules and function modules having a substantially common height (although the embodiment shown in figures show the functions modules to be of substantially common height and the power supply to be of a different height, column 3 lines 10-28 describe how the electronic system can accommodate function modules of different heights) and depth and being an integral number of slots wide (integer multiple in the embodiment shown is one) to enable variable number and type of module to be inserted within the enclosure, the power modules and function modules configured for interchangeable plug insertion into the same backplane slots. Although the embodiment does not show that the function module and power supply occupying the same backplane slot, they are configured to be interchangeable, since both are connected to the backplane slot using a plug-in connector, and column 3 lines 10-28 describes how function modules of different heights can be accommodated, and

column 2, lines 44-46 describe that the backplane can be changed to accommodate other configurations.

- With respect to claim 7, Young et al. further discloses at least one display and control module plug (126, 127, Figure 12) inserted into at least one backplane slot (column 7, lines 55-58) and comprising a user interface for display and input functionality (column 2, lines 63-65), the at least one display and control module having a height and depth substantially common with the height and depth of function modules and being adapted for interchangeable plug insertion into backplane slots in common with other function modules and power modules.
- With respect to claim 8, Young et al. further discloses at least one function module plug interchangeably inserted into at least one backplane slot, the function modules being selected from among a group comprising graphics modules, input/output (1/0) modules, Uninterrupted Power Supply (UPS) modules, storage modules, server modules, switch modules, processor modules, memory modules, and combinational modules combining functionality of a plurality of function modules (column 4, line 60- column 5, line 2).
- With respect to claim 9, Young et al. disclose an electronic system comprising: an enclosure (10); and a backplane comprising opposing first and second planar sides (20), the backplane intersecting the enclosure and comprising a plurality of slots on both the first (22) and

second planar sides (24) configured to interchangeably receive a plurality of modules (34, 35, 39), selected from among multiple different module types and functionalities (column 2, lines 47-57). Young et al. do not explicitly disclose that the backplane receives all power and signal connections from external to the enclosure via at least one of the modules rather than internal cabling. Grouell et al. teach a backplane that receive all power and signal connections from external to the enclosure via the modules rather than internal cabling (column 1, line 45-50). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electronic system as disclosed by Young et al. by incorporating the backplane as taught by Grouell et al., for easy assembly by snapping the components into place and to reduce the breaking of connections during repeated module insertions and extractions (abstract).

- With respect to claim 10, Young et al. further disclose modules that include power modules (34) and function modules (90) with substantially common height and depth and being an integral number of slots wide whereby the modules can be interchangeably inserted into at least one backplane slot. Although the embodiment does not show that the function module and power supply to be interchangeable, Young et al. describe variations in which they can be

interchangeable (column 2, lines 1-5; column 2, lines 47-57; column 3, lines 10-28).

- With respect to claim 11, Young et al. further disclose a first plenum airspace on a first end of the backplane and a second plenum airspace on a second end of the backplane, the first plenum including an input plenum and an output plenum so that cooling air circulates from the input plenum through modules on the first side of the backplane, through the second plenum, through modules on the second side of the backplane, and to the output plenum (column 3, lines 60-67).
- With respect to claim 12, Young et al. further discloses at least one cooling module (39) plug-inserted into a backplane slot (column 6, line 10) of the plurality of backplane slots adjacent to the first plenum airspace and adapted to move air through the plenum airspace (column 3, 61-67).
- With respect to claim 13, Young et al. further discloses a plurality of modules including power modules (34,35) and function modules (shown in figure) arranged in slots inserted into the first and second sides of the backplane, and having an unobstructed airway (column 3, line 60, figure 11) between the input plenum and the output plenum, the power modules and function modules being configured for interchangeable plug insertion into the same backplane slots. Although the embodiment does not show that the function module and power

supply occupying the same backplane slot, they are configured to be interchangeable, since both are connected to the backplane slot using a plug-in connector, and column 3 lines 10-28 describes how function modules of different heights can be accommodated, and column 2, lines 44-46 describe that the backplane can be changed to accommodate other configurations.

- With respect to claim 15, Young et al. further discloses at least one display and control module plug (126, 127, Figure 12) inserted into at least one backplane slot (column 7, lines 55-58) and comprising a user interface for display and input functionality (column 2, lines 63-65), the at least one display and control module having a height and depth substantially common with the height and depth of function modules.
- With respect to claim 16, Young et al. further discloses at least one function module plug interchangeably inserted into at least one backplane slot, the function modules being selected from among a group comprising graphics modules, input/output (1/0) modules, Uninterrupted Power Supply (UPS) modules, storage modules, server modules, switch modules, processor modules, memory modules, and combinational modules combining functionality of a plurality of function modules (column 4, line 60- column 5, line 2).
- With respect to claim 17, Young et al. disclose an electronic system comprising: an enclosure (10); a backplane comprising opposing first

and second planar sides (20), the backplane intersecting the enclosure and comprising a plurality of slots on both the first (22) and second planar sides (24) configured to interchangeably receive a plurality of modules (34, 35, 39), a first plenum airspace on a first end of the backplane and a second plenum airspace on a second end of the backplane, the first plenum including an input plenum and an output plenum so that cooling air circulates from the input plenum through modules on the first side of the backplane, through the second plenum, through modules on the second side of the backplane, and to the output plenum (column 3, lines 60-67). Young et al. do not explicitly say that the backplane receives all power and signal connections from external to the enclosure via the modules rather than internal cabling. Grouell et al. teach a backplane that receive all power and signal connections from external to the enclosure via the modules rather than internal cabling (column 1, lines 45-50). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electronic system as disclosed by Young et al. by incorporating the backplane as taught by Grouell et al., to reduce wire clutter and the possibility of accidentally breaking connections during repeated module insertions and extractions.

- With respect to claim 18, Young et al. further discloses at least one cooling module (39) plug-inserted into a backplane slot (column 6, line

10) adjacent to the first plenum airspace and adapted to move air through the airspace.

- With respect to claim 20, Young et al. further discloses a plurality of modules including power modules (34,35) and function modules interchangeably arranged in slots inserted into the first and second sides of the backplane, the modules further comprising: an unobstructed airway (column 3, line 60, figure 11) between the input plenum and the output plenum, and at least one status light-emitting diode (LED) (55a, 55b) coupled a display panel (55) on the enclosure adjacent the module (column 2, lines 63-65).
- With respect to claim 22, Young et al. further discloses at least one display and control module plug (126, 127, Figure 12) inserted into at least one backplane slot (column 7, lines 55-58) and comprising a user interface for display and input functionality (column 2, lines 63-65), the at least one display and control module having a height and depth substantially common with the height and depth of function modules and adapted for interchangeable insertion into one or more backplane slots in common with the function modules. Although the embodiment does not show that the function module and power supply to be interchangeable, Young et al. describe variations in which they can be interchangeable (column 2, lines 1-5; column 2, lines 47-57; column 3, lines 10-28).

- With respect to claim 23, Young et al. further discloses at least one function module plug interchangeably inserted into at least one backplane slot, the function modules being selected from among a group comprising graphics modules, input/output (1/0) modules, Uninterrupted Power Supply (UPS) modules, storage modules, server modules, switch modules, processor modules, memory modules, and combinational modules combining functionality of a plurality of function modules (column 4, line 60- column 5, line 2).
- With respect to claim 24, Young et al. disclose an electronic system comprising: means for enclosing a plurality of electronics components (10); multiple means for electronically performing a function (multiple disk drives performing I/O operations), one of the multiple performing means being adapted to perform functions selected from among a plurality of types and functions, the multiple performing means having a substantially common height and depth (see figure 12), and being an integral number of slots wide (integral multiple is one), enabling construction of a wide range of system configurations in terms of module function types and module function redundancy from a single set of modules and a single enclosure (column 2, lines 47-57); means for interchangeably inserting and holding the multiple performing means, and means for cooling (39) the interior of the enclosing means by circulating air around the inserting and holding means and through

the multiple performing means (column 3, lines 62-67). Young et al. do not disclose that the intersecting and holding means is supplied with power and signal connections via the multiple function performing means rather than cabling. Grouell et al. teach a holding means that receive all power and signal connections from external to the enclosure via the performing means rather than internal cabling (column 1, lines 45-50). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electronic system as disclosed by Young et al. by incorporating the holding means as taught by Grouell et al., for easy assembly by snapping the components into place and to reduce the breaking of connections during repeated module insertions and extractions (abstract).

2. Claims 6, 14 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. in view of Grouell et al. as applied above, and further in view of Doustou III et al. (US Patent 6,392,872).
   - With respect to claim 6, Young et al. as modified by Grouell et al. discloses all the limitations of claim 5, and further disclose at least one power module plug inserted into at least one backplane slot. The said power module having a height and depth substantially common with the height and depth of function modules (although the embodiment shown in the figures show the functions modules and the power supply

to be of a different height, column 3 lines 10-28 describe how the electronic system can accommodate function modules of different heights) and being adapted for interchangeable plug insertion into backplane slots in common with function modules (although the embodiment does not show that the function module and power supply to be interchangeable, Young et al. describe variations in which they can be interchangeable - column 2, lines 1-5; column 2, lines 47-57; column 3, lines 10-28). Young et al. do not explicitly disclose the power module having a power inlet for receiving system power in a configuration for alternating current (AC) power and direct current (DC) power. Doustou III et al. discloses a power supply module (73) (figure 5) suitable to be used with an electronic system having power inlets for receiving system power in a configuration for alternating current (AC) power (91-1) and direct current (DC) power (91-2). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electronic system as disclosed by Young et al. by incorporating the power supply module taught by Doustou III et al., to supply requisite power to the electronic system.

- With respect to claim 14, Young et al. as modified by Grouell et al. discloses all the limitations of claim 9, and further disclose at least one power module plug inserted into at least one backplane slot. The said power module having a height and depth substantially common with

the height (although the embodiment shown in the figures show the functions modules and the power supply to be of a different height, column 3 lines 10-28 describe how the electronic system can accommodate function modules of different heights) and depth of function modules and being adapted for interchangeable plug insertion into backplane slots in common with function modules (although the embodiment does not show that the function module and power supply to be interchangeable, Young et al. describe variations in which they can be interchangeable - column 2, lines 1-5; column 2, lines 47-57; column 3, lines 10-28). Young et al. do not explicitly disclose the power module having a power inlet for receiving system power in a configuration for alternating current (AC) power and direct current (DC) power. Doustou III et al. discloses a power supply module (73) (figure 5) suitable to be used with an electronic system having power inlets for receiving system power in a configuration for alternating current (AC) power (91-1) and direct current (DC) power (91-2). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electronic system as disclosed by Young et al. by incorporating the power supply module taught by Doustou III et al., to supply requisite power to the electronic system.

- With respect to claim 21, Young et al. as modified by Grouell et al. discloses all the limitations of claim 17, and further disclose at least

one power module plug inserted into at least one backplane slot. The said power module having a height and depth substantially common with the height (although the embodiment shown in the figures show the functions modules and the power supply to be of a different height, column 3 lines 10-28 describe how the electronic system can accommodate function modules of different heights) and depth of function modules and being capable of plug insertion into backplane slots in common with function modules (although the embodiment does not show that the function module and power supply to be interchangeable, Young et al. describe variations in which they can be interchangeable - column 2, lines 1-5; column 2, lines 47-57; column 3, lines 10-28). Young et al. do not explicitly disclose the power module having a power inlet for receiving system power in a configuration for alternating current (AC) power and direct current (DC) power. Doustou III et al. discloses a power supply module (73) (figure 5) suitable to be used with an electronic system having power inlets for receiving system power in a configuration for alternating current (AC) power (91-1) and direct current (DC) power (91-2). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the electronic system as disclosed by Young et al. by incorporating the power supply module taught by Doustou III et al., to supply requisite power to the electronic system.

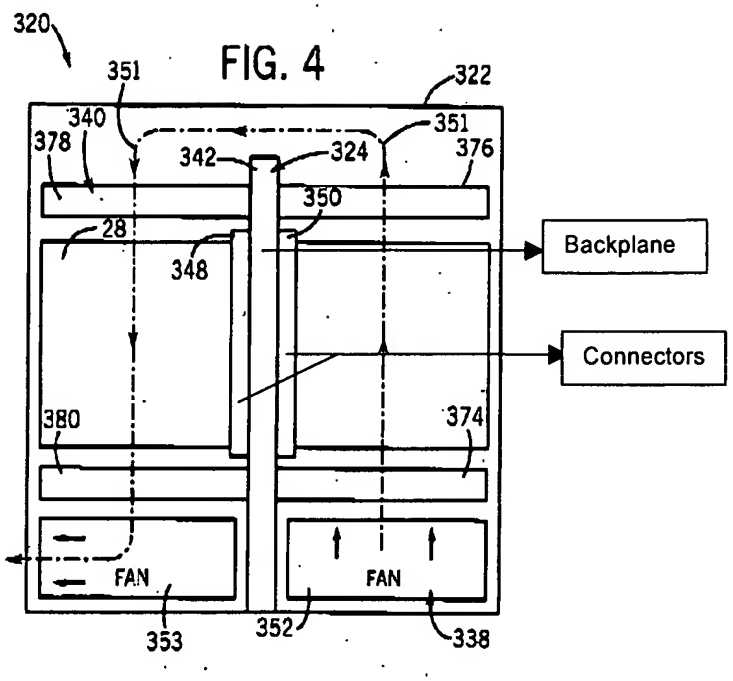


FIG. 4

3. Claim 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. in view of Grouell et al. as applied above, and further in view of Larson et al. (PGPub US2004/0252456 A1). Young et al. as modified by Grouell et al. satisfy all the limitations of claim 17. Young et al. do not explicitly disclose a first and second cooling modules plug inserted into respective first and second side backplane slots adjacent to the input plenum and the output plenum, respectively and arranged in a push-pull configuration. Larson et al. disclose a first and second cooling modules plug inserted into respective first and second side backplane slots adjacent to the input plenum and the output plenum, respectively and arranged in a push-pull configuration. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify

the electronic system as disclosed by Young et al. by incorporating the cooling modules on either side of the backplane as taught by Larson et al. to increase the efficiency of air flow through the enclosure.

Response to Arguments

The examiner thanks the applicant for pointing out that claims 23 and 24 were missed in the first office action. This was an oversight on the part of the examiner and is remedied in this office action.

Applicant's arguments filed on 12/06/2005 have been fully considered but they are not persuasive. Described below are the reasons why.

The applicant notes that:

> "The housing disclosed in Young does not have slots that interchangeably receive different types of function modules but rather includes a lower frontal section with slots that can only receive disk drives of various form factors, an upper frontal section that apparently has no slots but rather can hold various type of devices presumably by internal cable connection, a lower rear section with slots that can only receive power supply modules, and an upper rear section with no slots but rather can hold a cooling module that attaches by an internal cable connection".

The embodiment depicted in figures 1-4 of Young et al. shows a housing with slots that receive different types of function modules (tray modules that contains peripherals with and without controllers – column 2 lines 50-55). It is true that the embodiment shown has cooling modules in the upper rear and the power supplies in the lower rear of the

housing. However, Young et al. recognizes that using this approach, different configurations can be supported by replacing the backplane (column 2, lines 1-15). Therefore, although the embodiment does not show that the function modules and power supply occupying the same backplane slot, they are configured to be interchangeable, since both are connected to the backplane slot using a plug-in connector, and column 3 lines 10-28 describes how function modules of different heights can be accommodated, and column 2, lines 44-46 describe that the backplane can be changed to accommodate other configurations.

Since the applicant has not defined a special meaning for 'slot', the space (or cavity in the housing) that is used to fit these modules is interpreted as a 'slot'. The cooling module (39) is connected to the back plane using the plug 39a. It is true that a short cable connects the cooling fan module to the plug 39a. However, the cooling fan sits in a 'slot' in the housing and is 'plug-inserted' into the backplane.

> "Grouell does not disclose slots configured to interchangeably receive a plurality of modules" but rather shows an enclosure with slots configured to receive only disk drives"

Grouell discloses slots configured to interchangeably receive a plurality of disk drive modules. Moreover, Grouell is used for his teaching of a backplane that receives all power and signal connections via the modules rather than internal cabling.

> "Young et al. does not disclose power modules and function modules having a substantially common height and depth and being an integral number of slots wide but rather discloses disk drives that can be mounted in one size slot on the front section of a computer and power modules of a

> different height and/or depth that mount in the back of a computer".

Young et al. discloses power modules and function modules are the same width as the slot. This corresponds to an integer multiple between the slot width and the module width of one. Although the embodiment shown in figures show the functions modules to be of substantially common height and the power supply to be of a different height, column 3 lines 10-28 describe how the electronic system can accommodate function modules of different heights.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Biju Chandran whose telephone number is (571) 272-5953. The examiner can normally be reached on 8AM - 5PM. Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bic

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